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SOVIET COTTON PRODUCTION IN THE POSTWAR PERIOD

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FOREWORD

This report establishes a firm set of estimates showing Soviet cotton production in the postwar period. Recent admissions by top Soviet leaders concerning the inadequacies of agricultural production have exposed the critical condition of the agricultural sector of the Soviet economy. In some sectors of the agricultural economy, however, chiefly technical crops and notably cotton, production has grown considerably, principally because of the increased material inputs devoted to the sectors and the material incentives offered the peasants to produce. The production of cotton has far outstripped over-all agricultural production.

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CONTENTS

	<u>Page</u>
Summary and Conclusions	1
1. Introduction	3
2. Postwar Recovery, 1946-48	4
3. Intensive Development, 1949-54	7

Appendixes

Appendix A. Regional Breakdown of Soviet Cotton Production	15
1. Central Asia	15
a. Uzbek SSR	16
b. Tadzhik SSR	18
c. Turkmen SSR	20
d. Kirghiz SSR	22
e. Kazakh SSR	24
2. Transcaucasus	26
a. Azerbaydzhan SSR	26
b. Armenia SSR	31
c. Georgia SSR	33
3. Nonirrigated Cotton-Growing Regions	33
Appendix B. Gross Harvest Versus Barn Harvest	35
Appendix C. Reliability of Statistics Reported in the Soviet Press	39

~~TOP SECRET~~

~~TOP SECRET~~

	<u>Page</u>
Appendix D. Plan Fulfillment for Raw Cotton Procurement in Bukhara Oblast, 1952	47
Appendix E. Source References	49

Tables

1. Soviet Cotton Production, 1946-54	2
2. Soviet Cotton Production Plan for 1950 Under the Original Fourth Five Year Plan	6
3. Soviet Cotton Production, 1946-52	13
4. Cotton Production in Central Asia, 1946-52	15
5. Cotton Production in Uzbek SSR, 1946-52	16
6. Cotton Production in Tadzhik SSR, 1946-52	18
7. Cotton Production in Turkmen SSR, 1946-52	20
8. Cotton Production in Kirghiz SSR, 1946-52	22
9. Cotton Production in Kazakh SSR, 1946-52	24
10. Cotton Production in the Transcaucasus, 1946-52	27
11. Cotton Production in Azerbaydzhan SSR, 1946-52	27
12. Cotton Production in Armenia SSR, 1946-52	31
13. Cotton Production in Nonirrigated Regions, 1946-52	34

~~TOP SECRET~~

	<u>Page</u>
14.	41
15.	42
16.	43
17.	44
18.	45

Illustrations

	<u>Following Page</u>
Figure 1. Index of Cotton Production Compared to the Index of Total Agricultural Production in the USSR, 1948-54	2
Figure 2. Production of Ginned Cotton in the US and USSR, 1946-53	2

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SOVIET COTTON PRODUCTION IN THE POSTWAR PERIOD*

Summary and Conclusions

Soviet production of raw cotton in the postwar period increased from 1.6 million metric tons in 1946 to about 4.3 million in 1954 -- an increase of almost 170 percent. This increase reflects the intensive effort made in the irrigated regions of Central Asia and the Transcaucasus, which comprise the primary cotton-growing base in the USSR. In these regions there has been a considerable expansion of the area sown to cotton and a large increase in yields. In 1952, the last year for which a regional breakdown has been made, the sown area in these regions was over 35 percent greater and the yields were almost 60 percent higher than in 1946. An effort also has been made to increase production in the nonirrigated regions, but with little success, in spite of a large expansion of the sown area. From 1946 to 1952 the sown area in these regions increased from 2 to almost 30 percent of total area sown to cotton in the USSR, but yields were very low and declined during the period. In 1952 the nonirrigated regions still contributed less than 5 percent of total cotton production. Table 1** presents a summary of raw cotton production in the USSR from 1946 to 1954.

Cotton enjoyed a favored position in the postwar agricultural economy of the USSR. (See Figure 1*** for a comparison of postwar agricultural and cotton production in the USSR.) Cotton-growing

* The estimates and conclusions contained in this report represent the best judgment of ORR as of 1 December 1954.

** Table 1 follows on p. 2.

*** Following p. 2. below.

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regions received priorities for mineral fertilizers. The manufacture of cotton-cultivating machinery and cotton harvesters was given priority treatment in the agricultural machine-building industry. Irrigation facilities were rebuilt and expanded. The area sown to cotton was expanded at the expense of grains and perennial grasses. In order to stimulate cotton production, bonus payments were made to cotton farmers, and more consumer goods were made available to them.

Table 1
Soviet Cotton Production a/
1946-54

<u>Year</u>	<u>Harvest</u> (Thousand Metric Tons)	<u>Sown Area</u> (Thousand Hectares)	<u>Yield</u> (Centners per Hectare ^{b/})
1946	1,641	1,309	13
1947	1,705	1,447	12
1948	2,206	1,546	14
1949	2,527	1,776	14
1950	3,371	2,350	14
1951	3,644	2,425	15
1952	3,770 <u>c/</u>	2,442	15
1953	4,000 <u>d/</u>	N. A.	N. A.
1954	4,330 <u>d/</u>	N. A.	N. A.

a. Production figures represent barn harvest of raw cotton. Unless otherwise indicated, data are from Tables 3-13, pp. 13, 15, 16, 18, 20, 22, 24, 27, 31, and 34, respectively. See Appendix A.

b. Ten centners equal 1 metric ton. A yield of 10 centners per hectare is equal to a yield of 0.446 short tons per acre.

c. Soviet announced figure. The corresponding figure in Table 3 is 3,720,000 tons.

d. Estimated on the basis of Soviet announcements. See p. 12, below.

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INDEX OF COTTON PRODUCTION COMPARED TO THE
INDEX OF AGRICULTURAL PRODUCTION IN THE USSR, 1948-54
1948 = 100

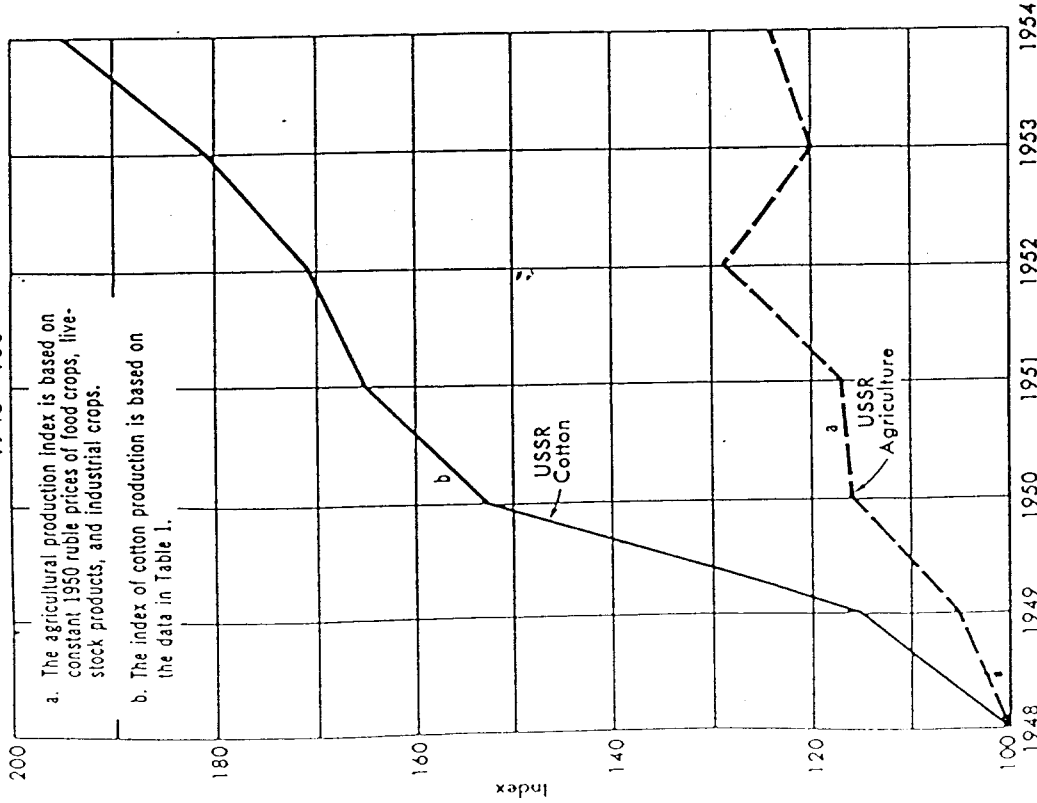


Figure 1

PRODUCTION OF GINNED COTTON
IN THE US AND THE USSR
1946-53

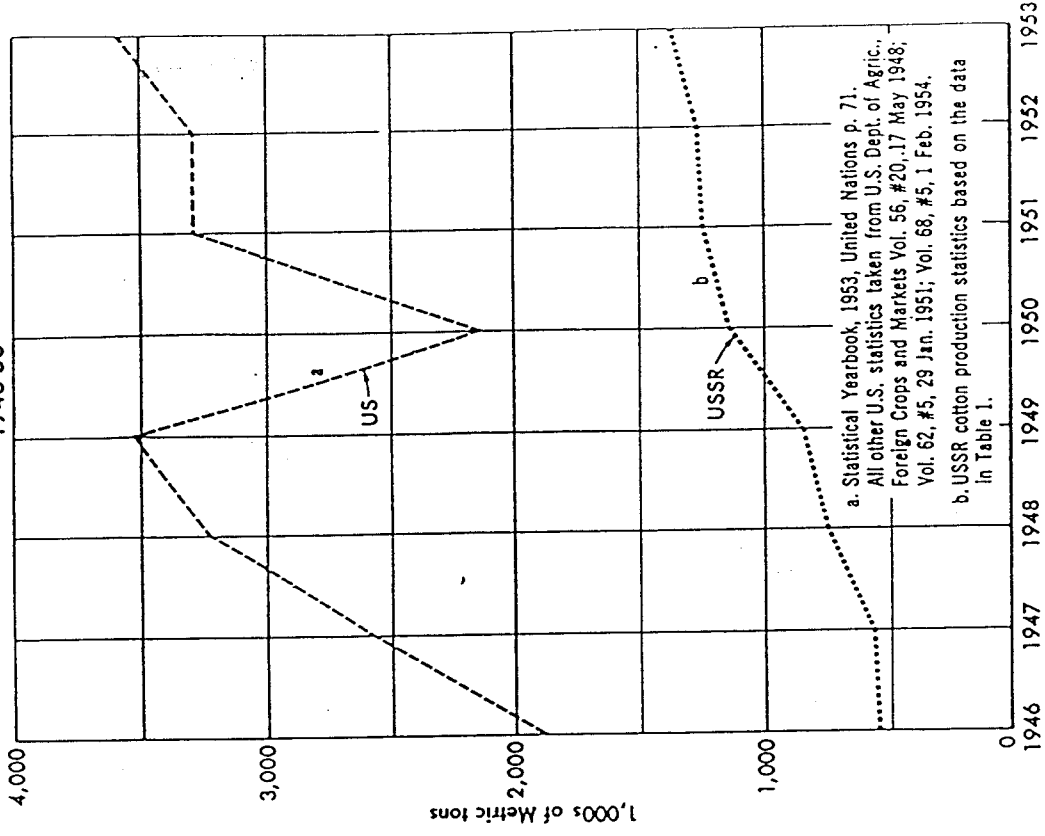


Figure 2

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Despite the solicitude of the Soviet government, the restoration of cotton production proceeded slowly in the early postwar years. The payment of small bonuses to cotton farmers was enough to compensate for the disparity between prevailing high prices which cotton farmers had to pay for grain and consumer goods and the state procurement price for cotton. After 1949, when special privileges were given to cotton farmers and the prices of grain and cotton were brought in line, cotton production rose rapidly, increasing by over 1 million tons in 3 years. This increase is to be contrasted with the irregular course of cotton production in the US. (See Figure 2* for a comparison between US and Soviet cotton production.) In view of the discontinuance of curtailment of large irrigation projects such as the Main Turkmen Canal in Turkmen SSR and the Kura Araks Irrigation and Reclamation Project in Azerbaydzhan SSR, which were designed to increase cotton production, cotton growing will be expanded only in those irrigated areas where capital inputs will not be too great and good yields are assured.

1. Introduction.

The importance of cotton in the Soviet economy was emphasized in Stalin's speech of 9 February 1946, in which he mentioned cotton together with metals, fuels, and grains as products which were to constitute the bases for the postwar economy. 1/** This emphasis on cotton production has been continued through the postwar period. In 1952, Soviet cotton production was already 70 percent above the 1940 level, whereas total agricultural production was only 10 percent above the 1940 level.*** After 1952, agricultural production fell off slightly, whereas cotton production continued to rise and by 1954 was almost double production in 1940.****

* Following p. 2, above.

** For serially numbered source references, see Appendix E.

*** These over-all figures were given by Malenkov and Khrushchev, respectively, in the summer of 1953. 2/

**** The figures on total Soviet agricultural production used in Figure 1, above, are recently published estimates. 3/

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The increase in Soviet cotton production after 1949 is in sharp contrast with US cotton production during the same years.*

Edible oils, livestock feed, clothing and cloth of all types, canvas, fertilizers, lacquers, paper, plastics, tires, and explosives are but a few of the many diverse products derived from the processed cotton fibers, seeds, and linters. Cotton plays an important part in consumer goods production. Cotton cloth is the basis of the Soviet textile industry, constituting over 85 percent of textile production in the postwar years. 5/ Cotton seed is the basis of about 25 percent of the production of the Soviet vegetable fats and oils industry. Cottonseed meal supplements the shortage of fodder crops in the important meat and dairy industries.

The chief cotton-growing regions in the USSR are the irrigated areas of the Uzbek, Tadzhik, Turkmen, Kirghiz, and Kazakh SSR's in Central Asia and of Azerbyadzhan SSR in the Transcaucasus. These areas annually produce more than 90 percent of the raw cotton output in the USSR.

accurate and reliable data for over 90 percent of Soviet cotton production are available.

Nonirrigated cotton is grown in the Southern Ukraine, Moldavia, and various krays, oblasts, and autonomous republics in the northern Caucasus and southern RSFSR. In 1940 the nonirrigated areas constituted 25 percent of the area sown to cotton but accounted for only 6 percent of raw cotton production. 6/

2. Postwar Recovery, 1946-48.

Although over 90 percent of Soviet cotton production is concentrated in regions physically untouched by World War II, production declined during the war, and in 1945 only 1.2 million metric tons** 7/

* The year-by-year comparison between US and Soviet cotton production presented in Figure 2, above, is in terms of ginned cotton, since the readily available US data 4/ are in those terms.

** Tonnages in this report are given in metric tons.

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of raw cotton* were produced. A war economy had necessitated the diversion of several hundred thousand hectares of cotton lands to food crops, chiefly grains and sugar beets. By the end of the war the irrigation system in many areas was on the verge of breaking down. Considerable land was becoming too alkaline for use and was in need of ameliorating to restore its productivity, while the supply of mineral fertilizers was almost completely exhausted. Labor was in short supply, and the agricultural machine park was in a serious state of disrepair. As a consequence of governmental laxity during the war, peasant discipline was at low ebb. By 1946, violations of the collective farms charter had reached serious proportions.

These were but a few of the problems complicating the restoration of cotton production in the postwar period. The Fourth Five Year Plan (1946-50), announced on 18 March 1946, set the pattern for recovery in the postwar years. A goal of 3.1 million tons (gross harvest) was set for 1950, which was to be attained by increased sown areas and yields. Increased yields were to account for the greater part of increased production, since the planned sown area was to be considerably less in 1950 than it had been in 1940. The original plan for 1950 is given in Table 2.**

The new plan got off to a good start. 1,634,000
tons of raw cotton were procured in 1946 from the irrigated regions alone, 8/ whereas the procurement plan for the entire USSR was only 1,533,000 tons, including 13,000 from the nonirrigated regions. 9/
The Soviet government may have felt it necessary to make concessions to the cotton farmers in view of the poor agricultural situation in 1946 and may have kept the plan low on this account. All the republics in the irrigated regions except Armenia and Kazakh overfulfilled the plan.

* Except as otherwise indicated, production figures in this report represent raw cotton. Raw cotton is cotton which has not been processed (ginned) to separate the fibers from the seeds.

** Table 2 follows on p. 6.

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Table 2

Soviet Cotton Production Plan for 1950
Under the Original Fourth Five Year Plan 10/

<u>Republic</u>	<u>Sown Area (Thousand Hectares)</u>	<u>Yield (Centners per Hectare)</u>	<u>Harvest a/ (Thousand Metric Tons)</u>
Uzbek	955.0	22.4	2,139.2
Turkmen	145.0	16.5	239.3
Tadzhik	107.0	18.0	192.6
Kirghiz	53.0	20.0	106.0
Kazakh	85.4	14.0	119.6
Azerbaydzhan	155.0	13.0	201.5
Armenia	15.0	21.0	31.5
Georgia	2.0	10.5	2.1
RSFSR	83.0	5.0	41.5
Ukraine	100.0	5.0	50.0
Total	<u>1,700.4</u>	<u>18.4</u>	<u>3,123.3</u>

a. In terms of gross harvest of raw cotton. See Appendix B.

Such was not the case in 1947. Raw cotton procurement was planned to be over 2 million tons, but only 1.7 million tons were procured. 11/ Only Azerbaydzhan and Tadzhik SSR fulfilled the plan; Uzbek SSR, the largest producer, underfulfilled the plan by 24 percent. 12/ Measures were taken to increase ginning extraction rates. Shortages of cotton were commonplace at both gins and spinning mills as a result not only of partial failure of the crop but also of shortages of fuel, electric power, transport, spare parts, and manpower. 13/

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In 1948, procurement of raw cotton rose to the prewar level of 2.2 million tons. Tadzhik SSR was the only major cotton-producing republic to fulfill the plan. Despite significant increases in production, postwar recovery plans were behind schedule.

3. Intensive Development, 1949-54.

In February 1949 a decree was promulgated by the Soviet Council of Ministers to cope with the problem of increasing cotton production. The object of this decree was to create a cotton base which would attain and surpass the prewar level considerably. Nonirrigated cotton acreage was to be expanded rapidly in the Ukraine, Moldavia, North Caucasus, and the Crimea. The level of mechanization was to be increased in the cotton-growing regions in 1949 and 1950. Special inducements were given to cotton farmers. Beginning in 1949, collective farms in the cotton-growing regions were to be exempted from obligatory deliveries of livestock products. Beginning in 1950, cotton-growing collective farms in Uzbek, Tadzhik, Turkmen, Kirghiz, and Azerbaydzhan SSR's were to be exempted from

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obligatory deliveries of grains (except rice) from the entire irrigated area. Bonuses were to be paid as encouragement to shock workers in cotton growing. 15/

On 27 February 1949, Benediktov, then Minister of Agriculture, stated that "in order to produce cotton in the required quantities it is necessary to free, for cotton cultivation, irrigated lands which had been used for grains. In this manner within the next two years, the cotton sown area will be increased by several hundred thousand hectares. It is necessary to reintroduce cotton where it was formerly grown." Benediktov made references to increased procurement prices which were to be paid for raw cotton. 16/

Despite the increased sown areas and the special inducements offered to cotton farmers, production did not increase significantly in 1949, although the prewar level was surpassed. Production was only 2.5 million tons, and Tadzhik and Azerbaydzhan SSR's were the only republics fulfilling the raw cotton procurement plan. Uzbek SSR fulfilled its plan by only 90 percent.

The decree of February 1949 had established a chief directorate for cotton growing in the Ministry of Agriculture, whose function was to head all branches of the Ministry of Agriculture in Central Asia and Azerbaydzhan SSR and assume functionary control of all other republics, krays, and oblasts growing cotton. That this Chief Directorate was unable to cope with the complexities of providing sufficient cotton to the USSR is evidenced by the fact that in April 1950 the Ministry of Cotton Growing was established. By this decree, all the organizations and institutions connected with the production and preliminary processing (ginning) of cotton were placed under the jurisdiction of this ministry. Republic ministries were established in the Central Asian republics, the Ukraine, and Azerbaydzhan SSR, and directorates of cotton growing attached to the Republican Councils of Ministers were set up in Armenia, Georgia, and Moldavia. 17/

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The creation of the Ministry of Cotton Growing was one of the "last ditch" measures taken by the USSR to guarantee fulfillment of the Fourth Five Year Plan. The total area sown to cotton in 1950 was 2,350,000 hectares, which represented an increase of almost 600,000 hectares over 1949* and over the original goal of the Fourth Five Year Plan, which was only 1.7 million hectares. Considerable increase took place in the nonirrigated areas. For example, the cotton planting plan for Uzbek SSR in 1950 was 1,051,000 hectares, as against the original goal of 955,000 hectares, 19/ Again the government offered special inducements to cotton farmers for increased production

* See Table 3, p. 13, below. On the basis of official Soviet announcements, a range from 2,303,000 to 2,414,000 hectares was calculated. Arbitrarily choosing the midpoint of this range yields an estimate of 2,358,000 hectares. 18/

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In order to stimulate production of cotton in the nonirrigated regions of Uzbek SSR, Abdurakhmanov, Chairman of the Uzbek Council of Ministers, requested Kosygin, Minister of Light Industry, USSR, in Moscow, to revoke the order of Glavkhlopok (Chief Directorate of Cotton Growing) establishing the exchange norm of 125 kilograms of wheat per ton of nonirrigated cotton and to extend to the nonirrigated cotton planted in Uzbek SSR the exchange norm of 350 kilograms per ton adopted for irrigated cotton of medium fiber. 22/

Material incentives were further increased by providing additional monetary payments to farmers overfulfilling the plan and to farmers working under unfavorable conditions. 23/ In Uzbek SSR, bonuses paid to cotton farmers in 1950 amounted to 2.5 million rubles. 24/

Special concern was shown in Moscow for shipments of grains for sale in the cotton-growing regions, and bottlenecks were treated on a high priority basis. 26/ Machinery and fertilizer inputs were increased

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significantly. a steady stream of cultivators, fertilizer spreaders, tractors, and cotton harvesters were shipped to the cotton-growing areas, chiefly Central Asia and Azerbaydzhan SSR, in 1950. 27/ Shipments of cotton-picking machines from the Tashkent Agricultural Machine Building plant alone totaled 2,410 units from 1 January to 1 September. 28/

That the special incentives offered the farmers and increased capital inputs invested in cotton growing had the desired effect is evident by the fact that in 1950 the principal cotton-growing area, Uzbek SSR, and the USSR as a whole fulfilled their raw cotton procurement plans for the first time since 1946. 29/ The Soviet press announced that the 1950 goal of 3.1 million tons was exceeded by 650,000 tons. 30/ This announcement apparently was in terms of the gross, or biological, harvest, since actual deliveries amounted to only about 3.4 million tons. Yield goals were not achieved, because of the disproportionate expansion of the sown area in the low-yielding, nonirrigated areas, by then almost 30 percent of the total sown area.

In March 1951, Rakhimov, Deputy Minister of Cotton Growing at the time, stated that production of raw cotton for 1951 must be at least 23 percent greater than in 1950. 31/ Since the gross harvest in 1950 was 3,750,000 tons, 32/ the planned gross harvest in 1951 must have been 4.6 million tons. Indications from the press reveal that 1951 was a good crop year but that considerable difficulty was encountered during harvesting. Inclement weather, poor labor organization, insufficient drying facilities, and peasant apathy impeded harvesting and delivery operations considerably. 33/ Since Tadzhik SSR was the only major cotton-growing republic to fulfill the plan and since Uzbek SSR fulfilled the plan by only 93 percent, the All-Union plan probably was fulfilled by no more than 90 percent. Bakulin, a Deputy Minister of Cotton Growing at the time, stated that in 1951 gross production exceeded 1940 gross output (which was reported at 2.7 million tons) by 46 percent. 34/ Gross production in 1951 would thus be over 3.9 million tons. Actual procurement, however, probably was no more than 10 percent higher than in 1950, or about 3.6 million tons.

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On 8 August 1953, Malenkov announced that 3,770,000 tons of raw cotton were delivered in 1952, an increase of 70 percent over 1940. ^{35/} This is almost identical to the estimate of 3.7 million tons developed in this report, The procurement plan was not fulfilled, since UZBEK SSR fulfilled its plan by only 93 percent. Tadzhik SSR was the only major producing area to fulfill the procurement plan.

Khrushchev announced on 23 February 1954 that the irrigated cotton regions delivered 82 percent more cotton in 1953 than in 1940. ^{36/} Production in 1940 was calculated at 2,217,000 tons, on the basis of Malenkov's statement that production in 1952 was 70 percent greater than in 1940. On the basis of regional production figures, production in the irrigated areas in 1940 was calculated to be 2,083,980 tons, 94 percent of total Soviet production. ^{37/} By applying the 1953 percentage increment over 1940, irrigated cotton production in 1953 would be 3,792,843 tons. Since this amount is the equivalent of about 95 percent of total Soviet production,* it is estimated that production in 1953 would be about 4 million tons. In January 1955, it was announced that 1954 production of raw cotton had been 331,000 tons greater than in 1953. ^{38/} Since 1953 production was estimated at 4 million tons, production in 1954 would be about 4.3 million tons. Table 3** summarizes production of raw cotton in the USSR in the postwar period. Unfortunately, too scanty to permit the regional breakdown made for the preceding years.***

* Based on the 1952 ratio, as calculated from Table 3.

** Table 3 follows on p. 13.

*** Data indicating the high reliability of the estimates for the years 1946-52 are given in Appendix C

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Table 3
Soviet Cotton Production a/
1946-52

	Harvest b/ (Thousand Metric Tons)					Sown Area (Thousand Hectares)					Yield (Centners per Hectare)				
	1946	1947	1948	1949	1950	1951	1952	1946	1947	1948	1949	1950	1951	1952	1952
Central Asia															
Uzbek	1,116	1,155	1,518	1,698	2,100	2,295	2,379	821	902	968	1,000	1,052	1,078	1,073	21
Tadzhik	135	162	199	210	280	320	368	99	100	106	117	129	131	134	20
Turkmen	144	112	119	199	276	316	260	125	140	126	140	150	160	165	24
Kirghiz	54	58	80	81	120	125	135	47	48	49	57	65	75	75	18
Kazakh	63	61	74	74	105	133	112	70	72	78	76	94	110	110	10
Total	1,512	1,548	2,020	2,262	2,881	3,189	3,266	1,162	1,262	1,326	1,390	1,489	1,554	1,557	21
Transcaucasia															
Azerbaijan	108	124	141	192	284	250	251	109	116	130	140	150	160	173	15
Armenia	13	15	20	25	30	29	28	14	15	15	15	17	17	18	16
Georgia	2	2	2	2	3	4	3	1	1	2	2	2	2	2	12
Total	122	141	163	219	317	282	282	124	131	146	157	169	180	193	15
Total Irrigated	1,634	1,609	2,184	2,482	3,198	3,471	3,548	1,286	1,393	1,473	1,548	1,658	1,733	1,750	20
Nonirrigated	7	16	22	45	173	173	173	24	54	74	229	692	692	692	2
Total USSR	1,641	1,705	2,206	2,527	3,371	3,654	3,720	1,309	1,447	1,546	1,776	2,350	2,425	2,442	15
Ginned Cotton c/	558	580	750	859	1,146	1,239	1,265								

a. Data are from Tables 4-13, pp. 15, 16, 18, 20, 22, 24, 27, 31, and 34, respectively, below. Totals and subtotals were derived from unrounded figures and do not always agree with rounded data shown.

b. Barn, or actual, harvest of raw cotton.

c. This summation of regional data substantiates the figure of 3,770,000 tons announced by Malenkov. 19/

d. This summation of regional data is in close agreement with the 2,358,000 figure cited in the footnote on p. 9, above.

e. Based on a ginning ratio of 34 percent. This ginning ratio is arrived at through an analysis of raw cotton processed (ginned) and the output of fiber by various republics, especially Uzbek. 40/

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APPENDIX A

REGIONAL BREAKDOWN
OF SOVIET COTTON PRODUCTION

1. Central Asia.

The Central Asian republics of Uzbek, Tadzhik, Turkmen, Kirghiz, and Kazakh constitute the primary cotton-growing base in the USSR. In 1940 this region produced almost 2 million tons of raw cotton, 85 percent of total Soviet production. Although recovery was hampered in the early postwar years by peasant apathy, materials and manpower shortages, and an inadequate irrigation system, production has increased steadily in the postwar period, as shown in Table 4.

Table 4

Cotton Production in Central Asia a/
1946-52

<u>Year</u>	<u>Harvest</u> <u>(Metric Tons)</u>	<u>Percent</u> <u>of USSR</u> <u>Total</u>	<u>Sown Area</u> <u>((Hectares)</u>	<u>Percent</u> <u>of USSR</u> <u>Total</u>	<u>Yield</u> <u>(Centners</u> <u>per Hectare)</u>
1946	1, 512, 143	92.13	1, 162, 000	88.75	13.01
1947	1, 548, 189	90.79	1, 261, 600	87.19	12.27
1948	2, 020, 500	91.61	1, 326, 100	85.76	15.24
1949	2, 262, 500	89.54	1, 390, 500	78.29	16.27
1950	2, 881, 000	85.46	1, 489, 140	63.37	19.34
1951	3, 188, 611	87.50	1, 553, 500	64.06	20.53
1952	3, 266, 000	87.78	1, 557, 000	63.76	20.98

a. Harvest, sown area, and yield figures are based on data contained in Tables 5-9, pp. 16, 18, 20, 22, and 24, respectively. Percentages were calculated on the basis of data contained in Table 3, p. 13, above.

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a. Uzbek SSR.

The Uzbek republic is by far the greatest cotton-producing republic in the USSR, annually producing from 60 to 70 percent of total Soviet production. Table 5 is a yearly breakdown of production in the postwar years.

Table 5

Cotton Production in Uzbek SSR
1946-52

Year	Harvest <u>a/</u> (Metric Tons)	Percent of USSR Total <u>b/</u>	Sown Area <u>a/</u> (Hectares)	Percent of USSR Total <u>b/</u>	Yield <u>a/</u> (Centners per Hectare)
1946	1,116,000 <u>c/</u>	68.0	821,000	62.71	13.59 <u>d/</u>
1947	1,155,000 <u>e/</u>	67.73	902,000	62.34	12.80 <u>f/</u>
1948	1,518,000 <u>g/</u>	68.83	968,000 <u>h/</u>	62.60	15.68
1949	1,698,000 <u>i/</u>	67.20	1,000,000 <u>j/</u>	56.30	16.98
1950	2,100,000 <u>k/</u>	62.3	1,051,500 <u>l/</u>	44.75	19.97
1951	2,295,000 <u>m/</u>	62.98	1,078,000 <u>n/</u>	44.45	21.29
1952	2,379,000 <u>o/</u>	63.94	1,073,000 <u>p/</u>	43.94	22.17

a. If only two components of the harvest/sown area/yield data are available, the third can be calculated.

b. Calculated from the figures in Table 3, p. 13, above.

c. The plan for 1946 was 1,072,700 tons. 41/ It was reported that on 30 November 1946, the plan for Uzbek was fulfilled and 1,073,428 tons of raw cotton had been delivered. Final plan fulfillment was later reported at 104.1 percent. 42/

d. 43/.

e. Deliveries up to 31 December 1947 were 1,152,674 tons. 44/ Deliveries increased by 2,625 tons through 29 February 1948, 45/ which would make final procurement slightly over 1,155,000 tons.

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Table 5

Cotton Production in Uzbek SSR
1946-52
(Continued)

f. 46/.

g. 47/. The Soviet press of January 1949 reported that 360,000 tons more were delivered in 1948 than in 1947. 48/ Since deliveries continued through January, procurement in 1948 is estimated at 1,518,000 tons.

h. 49/.

i. The Soviet press reported that 180,000 tons more raw cotton were delivered in 1949 than in 1948. 50/

j. 51/.

k. It was reported Moscow that 1,118,139 tons of raw cotton had been procured in Uzbek as of October 1950. 52/ This was conservatively interpolated to be about 55-percent plan fulfillment

53/ which would establish a plan of about 2,030,000 tons. This plan was eventually fulfilled by 103.5 percent, which would make actual procurement about 2.1 million metric tons. 54/

l. 55/. It is not known whether this included state farms, which would be about 50,000 hectares.

m. It was reported that Uzbek delivered or procured 83,700 tons more raw cotton in 1952 than in 1951. 56/ Since 2,379,000 tons were procured in 1952, 57/ procurement of raw cotton in 1951 would have been 2,295,300 tons.

n. 58/.

o. 59/.

p. 60/. It is not known whether this included state farms, which would be about 50,000 hectares.

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b. Tadzhik SSR.

Tadzhik is the only major cotton-producing republic in the USSR which has consistently fulfilled plans in the postwar period. Tadzhik ranks first in cotton yields. Table 6 represents an annual breakdown of cotton production in the postwar years.

Table 6
Cotton Production in Tadzhik SSR
1946-52

Year	Harvest <u>a/</u> (Metric Tons)	Percent of USSR Total <u>b/</u>	Sown Area <u>a/</u> (Hectares)	Percent of USSR Total <u>b/</u>	Yield <u>a/</u> (Centners per Hectare)
1946	135,000 <u>c/</u>	8.23	99,000	7.56	13.64 <u>d/</u>
1947	162,000 <u>e/</u>	9.5	100,000	6.91	16.20 <u>f/</u>
1948	199,000 <u>g/</u>	9.02	105,600	6.83	18.84 <u>h/</u>
1949	210,000 <u>i/</u>	8.31	117,000 <u>j/</u>	6.59	17.95
1950	280,000 <u>k/</u>	8.31	129,000 <u>l/</u>	5.49	21.71
1951	320,000 <u>m/</u>	8.78	131,000 <u>n/</u>	5.40	24.43
1952	380,000 <u>o/</u>	10.21	134,000 <u>p/</u>	5.49	28.36

a. If only two components of the harvest/sown area/yield data are available, the third can be calculated.

b. Calculated from the figures in Table 3, p. 13, above.

c. 61/.

d. 62/.

e. 63/. The plan was 144,450 tons and it was fulfilled by 112 percent. 64/

f. Interpolation from 1946 harvest/yield data.

g. The Soviet press of 16 January 1949 reported that 36,700 tons more cotton were delivered in 1948 than in 1947. 65/

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Table 6

Cotton Production in Tadzhik SSR
1946-52
(Continued)

- h. The Soviet press of 4 December 1948, reported that as of 1 December 1948 the plan for Tadzhik was fulfilled and the average delivery per hectare was 18 centners. 66/ Since the plan was overfulfilled by about 13,000 tons, the yield is calculated to be 18.8 centners.
- i. The procurement plan, in view of 1948 production, was probably around 200,000 tons. The plan was reported fulfilled by the Soviet press of 13 December 1949. 67/ Since deliveries continue into January, final procurement was probably around 210,000 tons.
- j. A conservative interpolation between 1948 and 1950 sown areas.
- k. The Soviet press of 20 December 1951 reported that the procurement plan for 1951 was fulfilled as of 17 December 1951 and that 40,000 tons more cotton were delivered than as of the same date in 1950. 68/ Deliveries in 1951 were 320,000 tons (see footnote m). Since the 1951 plan was fulfilled eventually by 100.29 percent, 69/ very little cotton was delivered after 17 December 1951. Thus 1950 deliveries would be a minimum of 280,000 tons.
- l. The Soviet press of 15 June 1951 reported that sown area in 1950 was 31 percent greater than in 1946. 70/
- m. The Soviet press of 2 January 1953 reported that cotton procurement in 1952 was 60,000 tons greater than in 1951. 71/ Procurement in 1952 was calculated to be about 380,000 tons, which would make procurement in 1951 about 320,000 tons.
- n. Interpolation of 1950 and 1952 sown areas.
- o. 72/.
- p. 73/

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c. Turkmen SSR.

Table 7 presents an annual breakdown of raw cotton production in Turkmen SSR in the postwar period.

Table 7

Cotton Production in Turkmen SSR
1946-52

Year	Harvest <u>a/</u> (Metric Tons)	Percent of USSR Total <u>b/</u>	Sown Area <u>a/</u> (Hectares)	Percent of USSR Total <u>b/</u>	Yield <u>a/</u> (Centners per hectare)
1946	144,000	8.77	125,000 <u>c/</u>	9.55	11.52 <u>d/</u>
1947	112,000 <u>e/</u>	6.57	140,000 <u>f/</u>	9.68	8.0
1948	149,000 <u>g/</u>	6.76	126,000 <u>h/</u>	8.15	11.83
1949	199,000 <u>i/</u>	7.88	140,000 <u>j/</u>	7.88	14.21
1950	276,000 <u>k/</u>	8.19	150,040 <u>l/</u>	6.39	18.40
1951	316,000 <u>m/</u>	8.67	160,000 <u>n/</u>	6.60	19.75
1952	260,000 <u>o/</u>	6.99	165,000 <u>p/</u>	6.76	15.76

a. If only two components of the harvest/sown area/yield data are available, the third can be calculated.

b. Calculated from the figures in Table 3, p. 13, above.

c. 74/.

d. 75/.

e. 76/.

f. 77/.

g. The Soviet press of 29 January 1950 reported that one-third more raw cotton was delivered in 1949 than in 1948 in Turkmenia. 78/.

h. 79/.

i. The Soviet press of 26 September 1952 reported that 59 percent more raw cotton was delivered in 1951 than in 1949. 80/.

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Table 7

Cotton Production in Turkmen SSR
1946-52
(Continued)

-
- j. 81/.
- k. The Soviet press of 17 December 1950 reported that the raw cotton procurement plan for Turkmen SSR was fulfilled by 100.3 percent on that date, which was 64,000 tons more than in 1949. 82/. This would establish the plan for 1950 at about 263,000 tons. Final plan fulfillment was reported in September 1952 to be 104.9 percent, which would make actual procurement about 276,000 tons. 83/.
- l. 84/.
- m. 85/.
- n. 86/.
- o. As of 6 October 1952, 99,143 tons of cotton had been procured in Turkmen SSR. 87/. An exact percentage of plan fulfillment for 6 October is not available, but an interpolation of data between 29 September and 10 October established a percentage of plan fulfillment at about 33 percent. 88/ This would establish the plan at around 300,000 tons. On 7 December 1952, the plan was fulfilled by 84.05 percent. 89/ Since deliveries continue through December and January on a small scale, it is assumed that the plan was eventually fulfilled by at least 87 percent. Actual procurement, therefore, would be at least 276,000 tons. 90/

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d. Kirghiz SSR.

Table 8 presents an annual breakdown of raw cotton production in the Kirghiz SSR in the postwar period.

Table 8
Cotton Production in Kirghiz SSR
1946-52

<u>Year</u>	<u>Harvest a/ (Metric Tons)</u>	<u>Percent, of USSR Total b/</u>	<u>Sown Area a/ (Hectares)</u>	<u>Percent of USSR Total b/</u>	<u>Yield a/ (Centners per Hectare)</u>
1946	54,500 <u>c/</u>	3.32	47,000 <u>d/</u>	3.59	11.50
1947	58,500 <u>e/</u>	3.43	47,600 <u>f/</u>	3.29	12.29
1948	80,000 <u>g/</u>	3.63	49,000 <u>h/</u>	3.17	16.33
1949	81,000 <u>i/</u>	3.21	57,000 <u>j/</u>	3.21	14.21
1950	120,000 <u>k/</u>	3.56	65,000 <u>l/</u>	2.77	18.46
1951	125,000 <u>m/</u>	3.43	75,000 <u>n/</u>	3.09	16.67
1952	135,000 <u>o/</u>	3.63	75,000 <u>o/</u>	3.07	18.00

a. If only two components of the harvest/sown area/yield data are available, the third can be calculated.

b. Calculated from the figures in Table 3, p. 13, above.

c. As of 31 December 1946, 54,076 tons of raw cotton had been delivered. 91/ Since deliveries continue on a small scale through January it is estimated that about 54,500 tons would have been delivered.

d. 92/.

e. As of 31 December 1947, 58,348 tons of raw cotton had been delivered. 93/ Deliveries continue on a small scale through January and it is estimated that at least 58,500 tons would have been delivered.

f. 94/.

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Table 8

Cotton Production in Kirghiz SSR
1946-52
(Continued)

- g. the raw cotton delivery plan for 1948 was 89,100 tons. 95/ As of 1 December 1948, 76,220 tons had been delivered, which was 85.5 percent plan fulfillment. 96/ Since deliveries continue through December and January, the plan was probably fulfilled by at least 90 percent, thus making final procurement about 80,000 tons.
- h. 97/.
- i. as of April, 259 collective farms had contracted to deliver 100,186 tons of raw cotton from 52,000 hectares. It was reported in the Soviet press of 3 February 1950, that there were 285 cotton-growing collective farms in Kirghiz in 1949. Interpolating from the above data, contracted deliveries would have been 110,000 tons from 57,000 hectares. The procurement plan was fulfilled by 73.8 percent, 98/ which would make actual deliveries of 81,000 tons in 1949.
- j. Derived from 1948 acreage.
- k. 99/.
- l. 100/. The Soviet press reported in June 1951 that cotton-sown area increased 39 percent from 1946 to 1950, which would give a sown area of 65,330 hectares. 101/
- m. In view of the sown area and the harvest/yield data for 1950, the raw cotton procurement plan for 1951 was probably about 150,000 tons. The Soviet press on 1 February 1952, reported a plan fulfillment of 83.5 percent, thus making actual procurement about 125,000 tons. 102/
- n. 103/. The Soviet press on 3 January 1952, reported that the cotton-sown area increased 15 percent in 1951 over 1950, which would give a sown area of 74,750 hectares. 104/
- o. Because of a lack of data for 1952, it can only be assumed that the raw cotton procurement plan was at least the same as in 1951, about 150,000 tons, to be delivered from about 75,000 hectares. The plan was fulfilled by 90 percent. 105/

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e. Kazakh SSR.

Table 9 presents an annual breakdown of raw cotton production in Kazakh SSR in the postwar period.

Table 9

Cotton Production in Kazakh SSR
1946-52

Year	Harvest <u>a/</u> (Metric Tons)	Percent of USSR Total <u>b/</u>	Sown Area <u>a/</u> (Hectares)	Percent of USSR Total <u>b/</u>	Yield <u>a/</u> (Centners per Hectare)
1946	62,643 <u>c/</u>	3.82	70,000 <u>d/</u>	5.35	8.95
1947	60,689 <u>e/</u>	3.56	72,000 <u>f/</u>	4.98	8.43
1948	74,500 <u>g/</u>	3.38	77,500 <u>g/</u>	5.01	9.61
1949	74,500 <u>h/</u>	2.95	76,500 <u>i/</u>	4.31	9.74
1950	105,000 <u>j/</u>	3.11	93,600 <u>k/</u>	3.98	11.22
1951	132,611 <u>l/</u>	3.64	109,500 <u>m/</u>	4.52	12.11
1952	112,000 <u>n/</u>	3.01	110,000 <u>o/</u>	4.50	10.18

a. If only two components of the harvest/sown area/yield data are available, the third can be calculated.

b. Calculated from the figures in Table 3, p. 13, above.

c. 106/.

d. Interpolation of 1948 sown area.

e. 107/. Interpolation between sown area figures for 1945 (see footnote k/) and for 1948 (see footnote g/).

f. Interpolation of 1948 sown area.

g. In 1948 a harvest of 96,695 tons was planned from an area of 77,500 hectares. 108/ It was reported that as of 21 December 1948, 76.3 percent of the plan had been fulfilled, 109/ which would be about 73,778 tons delivered to that date. Since deliveries continued on a small scale through January, final procurement was probably about 74,500 tons.

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Table 9

Cotton Production in Kazakh SSR
1946-52
(Continued)

-
- h. Due to a lack of information on 1949, it can only be assumed that 1949 production approximated 1948 production.
- i. The sown area for 1951 was reported to be 43.5 percent over 1949. 110/
- j. As of 10 January 1951, 70,000 tons of raw cotton remained at gins and procurement points in Kazakh. 111/ Kazakh has the capacity to process (gin) 15,000 tons of raw cotton monthly. 112/ Since September-December is the main procurement season for raw cotton, gins are working at as near capacity as possible. It is conservatively estimated that at least 35,000 tons of raw cotton were processed in September and the last quarter of 1950. This would make raw cotton procurement in 1950 at least 105,000 tons.
- k. The Soviet press on 16 June 1951, reported that the cotton-sown area in Kazakh increased 44 percent during the Fourth Five Year Plan. 113/ Assuming that this increment is based on the 1945 sown area, which was 65,000 hectares, 114/ the sown area for 1950 would be 93,600 hectares.
- l. 115/
- m. The Soviet press of 28 July, 1951, reported that the cotton-sown area increased by 17 percent. 116/ It is assumed that the 17-percent increment is over 1950.
- n. As of 1 April 1952, 132,401 tons of cotton had been delivered in Kazakh, credited to the 1951 procurement season. 117/ As of 1 February 1952, 76.56 percent of the plan had been fulfilled. 118/ Since deliveries are very small after 1 February, it could be assumed that the plan was fulfilled by no more than 77 percent by 1 April. This would establish the 1951 procurement plan at about 172,000 tons. It is logical that the plan for 1952 would at least approximate the 1951 plan. The procurement plan for 1952 was fulfilled 64.6 percent as of 10 December 1952. 119/ Deliveries continue on a small scale through January so it

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Table 9

Cotton Production in Kazakh SSR
1946-52
(Continued)

can be assumed that the procurement plan was eventually fulfilled by at least 65 percent, which would make actual procurement at least 112,000 tons in 1952.

o. The Soviet press of 4 May 1952 reported an increase in sown area of 1,000 hectares over 1951. 120/

2. Transcaucasus.

The Transcaucasus is the second-ranking cotton-growing region in the USSR and is comprised of the republics of Azerbaydzhan, Armenia, and Georgia. In 1940 this region produced 10 percent of total Soviet raw cotton production on a sown area of about 205,000 hectares. In the postwar years recovery was quite rapid, since this area was untouched by the war. By 1952 the sown area had not attained the prewar level, but yields had doubled. Table 10* presents an annual breakdown of raw cotton production in the Transcaucasus in the postwar period.

a. Azerbaydzhan SSR.

Azerbaydzhan SSR is the most important of the three cotton-growing republics in the Transcaucasus. Although sown area has not attained the 1940 level of 188,000 hectares, yields have doubled, because of quality seed, increased machinery and fertilizer inputs, and a better irrigation system. Table 11** presents an annual breakdown of raw cotton production in Azerbaydzhan SSR in the postwar period.

* Table 10 follows on p. 27.

** Table 11 follows on p. 27.

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Table 10

Cotton Production in the Transcaucasus a/
1946-52

Year	Harvest (Metric Tons)	Percent of USSR Total	Sown Area (Hectares)	Percent of USSR Total	Yield (Centners per Hectare)
1946	122,050	7.44	123,500	9.43	9.88
1947	140,735	8.25	131,200	9.07	10.73
1948	163,050	7.39	146,500	9.47	11.13
1949	219,400	8.68	157,000	8.84	13.97
1950	317,000	9.40	168,600	7.17	18.80
1951	282,500	7.75	179,500	7.40	15.74
1952	281,500	7.57	193,000	7.90	14.59

a. Derived from data contained in Tables 3, 11, and 12, pp. 13, 27, and 31, respectively.

Table 11

Cotton Production in Azerbaydzhan SSR
1946-52

Year	Harvest <u>a/</u> (Metric Tons)	Percent of USSR Total <u>b/</u>	Sown Area <u>a/</u> (Hectares)	Percent of USSR Total <u>b/</u>	Yield <u>a/</u> (Centners per Hectare)
1946	107,500 <u>c/</u>	6.55	109,000 <u>d/</u>	8.33	9.86
1947	124,000 <u>e/</u>	7.27	116,000 <u>f/</u>	8.02	10.69
1948	141,300 <u>g/</u>	6.41	130,000 <u>h/</u>	8.41	10.87
1949	192,300 <u>i/</u>	7.61	140,000 <u>j/</u>	7.88	13.74

* Footnotes for Table 11 follow on p. 28.

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Table 11

Cotton Production in Azerbaydzhan SSR
1946-52
(Continued)

Year	Harvest <u>a/</u> (Metric Tons)	Percent of USSR Total <u>b/</u>	Sown Area <u>a/</u> (Hectares)	Percent of USSR Total <u>b/</u>	Yield <u>a/</u> (Centners per Hectare)
1950	284,000 <u>k/</u>	8.42	149,500 <u>l/</u>	6.36	19.0
1951	250,000 <u>m/</u>	6.86	160,000 <u>n/</u>	6.60	15.62
1952	251,000 <u>o/</u>	6.75	173,000 <u>p/</u>	7.08	14.51

a. If any two components of the harvest/sown area/yield data are available, the third can be calculated.

b. Calculated from the figures in Table 3, p. 13, above.

c. As of 10 December 1946, 106,960 tons of raw cotton had been delivered. Final procurement was probably at least 107,500 tons, since deliveries continue on a small scale through December and January. 121/

d. The Soviet press of 19 January 1947 reported that the sown area in 1946 was 102.1 percent of 1945, 122/ which was 107,000 hectares. 123/

e. The raw cotton procurement plan for 1947 was 109,730 tons. 124/ Deliveries were computed to be 123,337 tons by 31 December 1947 125/ however, deliveries continue on a small scale through January, so final procurement was probably about 124,000 tons. The Soviet press of 13 January 1948 reported that the procurement plan had been fulfilled by 113.4 percent for 1947 126/; thus deliveries would be computed at about 124,000 tons.

f. 127/.

g. Procurement in 1949 was reported to be 51,000 tons greater than in 1948. 128/ 1949 production was calculated at 192,300 tons 129/ 130/ 131/ 132/ 133/ 134/ 135/ 136/ 137/ 138/ 139/ 140/ 141/ 142/ 143/ 144/ 145/ 146/ 147/ 148/ 149/ 150/ 151/ 152/ 153/ 154/ 155/ 156/ 157/ 158/ 159/ 160/ 161/ 162/ 163/ 164/ 165/ 166/ 167/ 168/ 169/ 170/ 171/ 172/ 173/ 174/ 175/ 176/ 177/ 178/ 179/ 180/ 181/ 182/ 183/ 184/ 185/ 186/ 187/ 188/ 189/ 190/ 191/ 192/ 193/ 194/ 195/ 196/ 197/ 198/ 199/ 200/ 201/ 202/ 203/ 204/ 205/ 206/ 207/ 208/ 209/ 210/ 211/ 212/ 213/ 214/ 215/ 216/ 217/ 218/ 219/ 220/ 221/ 222/ 223/ 224/ 225/ 226/ 227/ 228/ 229/ 230/ 231/ 232/ 233/ 234/ 235/ 236/ 237/ 238/ 239/ 240/ 241/ 242/ 243/ 244/ 245/ 246/ 247/ 248/ 249/ 250/ 251/ 252/ 253/ 254/ 255/ 256/ 257/ 258/ 259/ 260/ 261/ 262/ 263/ 264/ 265/ 266/ 267/ 268/ 269/ 270/ 271/ 272/ 273/ 274/ 275/ 276/ 277/ 278/ 279/ 280/ 281/ 282/ 283/ 284/ 285/ 286/ 287/ 288/ 289/ 290/ 291/ 292/ 293/ 294/ 295/ 296/ 297/ 298/ 299/ 300/ 301/ 302/ 303/ 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904/ 905/ 906/ 907/ 908/ 909/ 910/ 911/ 912/ 913/ 914/ 915/ 916/ 917/ 918/ 919/ 920/ 921/ 922/ 923/ 924/ 925/ 926/ 927/ 928/ 929/ 930/ 931/ 932/ 933/ 934/ 935/ 936/ 937/ 938/ 939/ 940/ 941/ 942/ 943/ 944/ 945/ 946/ 947/ 948/ 949/ 950/ 951/ 952/ 953/ 954/ 955/ 956/ 957/ 958/ 959/ 960/ 961/ 962/ 963/ 964/ 965/ 966/ 967/ 968/ 969/ 970/ 971/ 972/ 973/ 974/ 975/ 976/ 977/ 978/ 979/ 980/ 981/ 982/ 983/ 984/ 985/ 986/ 987/ 988/ 989/ 990/ 991/ 992/ 993/ 994/ 995/ 996/ 997/ 998/ 999/ 1000/ 1001/ 1002/ 1003/ 1004/ 1005/ 1006/ 1007/ 1008/ 1009/ 1010/ 1011/ 1012/ 1013/ 1014/ 1015/ 1016/ 1017/ 1018/ 1019/ 1020/ 1021/ 1022/ 1023/ 1024/ 1025/ 1026/ 1027/ 1028/ 1029/ 1030/ 1031/ 1032/ 1033/ 1034/ 1035/ 1036/ 1037/ 1038/ 1039/ 1040/ 1041/ 1042/ 1043/ 1044/ 1045/ 1046/ 1047/ 1048/ 1049/ 1050/ 1051/ 1052/ 1053/ 1054/ 1055/ 1056/ 1057/ 1058/ 1059/ 1060/ 1061/ 1062/ 1063/ 1064/ 1065/ 1066/ 1067/ 1068/ 1069/ 1070/ 1071/ 1072/ 1073/ 1074/ 1075/ 1076/ 1077/ 1078/ 1079/ 1080/ 1081/ 1082/ 1083/ 1084/ 1085/ 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Table 11

Cotton Production in Azerbaydzhan SSR
1946-52
(Continued)

it was calculated that a minimum of 83,000 tons of raw cotton would have been processed, thus making 1948 procurement at least 138,000 tons. 130/ h.

The cotton-sown area in 1948 was at least 125,500 hectares. Since this did not include state farms, the total sown area was probably about 130,000 hectares.

i. It was reported in March 1951 that in 1950 there were procured 91,700 tons more cotton than in 1949. 131/ Since 284,000 tons were procured in 1950 (see footnote k), 1949 procurement would be 192,300 tons. The Soviet press of 31 January 1950 reported that the raw cotton procurement plan for 1949 was fulfilled by 100.6 percent. 132/ as of December 1949 the raw cotton procurement plan was fulfilled 99.49 percent. 133/

j. Interpolation of 1948 and 1950 sown areas.

k. It was reported that as of 22 October 1950 the raw cotton procurement plan was fulfilled and 50 percent more cotton was procured than for all of 1940. 134/ Since 155,000 tons of cotton were procured in 1940, 135/ this would establish the 1950 plan at 232,500 tons. The plan was fulfilled by 122.1 percent, 136/ thus making final procurement about 284,000 tons. as of 31 October 1950

there remained 196,013 tons of raw cotton at procurement centers and ginning mills. 137/ During September and October of 1950, at least 58,000 tons of raw cotton were ginned from the current crop, making a total of at least 254,000 tons of cotton procured as of 31 October 1950. 138/ Since this was about 109 percent of plan fulfillment, 139/ the plan would be calculated at 233,000 tons. As of 10 January 1951, the procurement plan was fulfilled by 122.1 percent, thus making actual procurement 284,260 tons. 140/

l. 141/.

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Table 11

Cotton Production in Azerbaydzhan SSR
1946-52
(Continued)

m. In view of the 1950 production/yield data and the interpolated sown area, a raw cotton procurement plan of at least 300,000 tons was feasible. The plan was not fulfilled, 142/ and since no figures were released in the press, it is assumed that the 1951 harvest was not a good one. This is further borne out by the unusual fact that all the raw cotton in the republic had been processed by 30 June 1952. 143/ As of 20 April 1952, only 25,990 tons of raw cotton remained at gins and procurement centers. 144/ On the basis of the ginned cotton output from August 1951 through 20 April 1952, it is estimated that about 225,000 tons of raw cotton would have been processed in Azerbaydzhan or shipped to Armenia for processing. Thus, the 1951 harvest would have been about 250,000 tons.

n. Interpolation of 1950 and 1952 sown areas.

o. Azerbaydzhan gins have the capacity to process 35,000 tons of raw cotton monthly. 145/ During the peak procurement season, September through December, the gins are operating at peak or near-peak capacity. From September 1952 through 10 January 1953, it is very conservatively estimated that a minimum of 100,000 tons of raw cotton would have been processed. It was reported that as of 10 January 1953, 151,000 tons of raw cotton remained at gins and procurement centers. 146/ Thus a bare minimum of 251,000 tons of raw cotton would have been procured in 1952.

p. 147/.

~~TOP SECRET~~

b. Armenia SSR.

Armenia SSR is a minor cotton-growing republic. Its production constituted less than one percent of total output in 1940. Although production has grown in the postwar period, production in 1952 constituted less than one percent of total Soviet production. Table 12 presents an annual breakdown of raw cotton production in Armenia for the postwar years.

Table 12

Cotton Production in Armenia SSR
1946-52

Year	Harvest a/ (Metric Tons)	Percent of USSR Total b/	Sown Area a/ (Hectares)	Percent of USSR Total b/	Yield a/ (Centners per Hectare)
1946	13,000 c/	0.79	13,500 d/	1.03	9.63
1947	15,000 e/	0.88	14,000 f/	0.97	10.71
1948	20,000 g/	0.91	15,000 h/	0.97	13.33
1949	25,000 i/	0.99	15,000 j/	0.84	16.67
1950	30,000 k/	0.89	17,000 l/	0.72	17.65
1951	29,000 m/	0.80	17,000 n/	0.70	17.06
1952	27,500 o/	0.74	17,500 p/	0.72	15.71

a. If any two components of the harvest/sown area/yield data are available, the third can be calculated.

b. Calculated from the figures in Table 3, p. 13, above.

c. By 20 December 1946, 12,910 tons had been delivered to procurement points. 148/ Since deliveries continue on a small scale in January, it is probable that at least 13,000 tons were delivered.

d. 149/.

e. The plan was 19,320 tons, 150/ which was 4,000 tons greater than the 1946 plan. In view of the 1946 plan and plan fulfillment, it seems

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Table 12

Cotton Production in Armenia SSR
1946-52
(Continued)

logical that about 15,000 tons would have been delivered in 1947.

f. Interpolation of 1946 and 1948 sown areas.

g. The sowing plan for the Fourth Five Year Plan, 15,000 hectares, was reported fulfilled in 1948. 151/ Contracts were negotiated on the basis of 15.5 centners per hectare. 152/ This would make planned procurement 23,000 tons. It is probable that at least 20,000 tons were delivered in 1948.

h. See footnote g.

i. The Soviet press of 13 June 1951 reported that the planned yield of 16.6 centners per hectare for 1950 was attained in 1949. 153/ Assuming the sown area to be at least as great as in 1948, actual procurement would be at least 25,000 metric tons.

j. It is assumed that the sown area would be at least as great as in 1948.

k. The raw cotton procurement plan was reported fulfilled as early as 14 November 1950, at which time 1,900 tons more cotton were delivered than in 1949. Deliveries continue through December and even into January, so it is feasible that the plan may have been overfulfilled by as much as 5,000 tons, making procurement in 1950 about 30,000 tons.

l. 154/.

m. The Soviet press of 9 February 1952 reported the procurement plan fulfilled by 106 percent although yields decreased slightly. 155/ Procurement was probably about 29,000 tons.

n. 156/.

o. Cotton production in 1952 is estimated at 27,500 tons in the light of 1951 production. The procurement plan was fulfilled by 85 percent. 157/

p. 158/

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c. Georgia SSR.

Georgia SSR is insignificant as a cotton-growing republic. The Fourth Five Year Plan established a goal of 2,100 tons, to be produced from a sown area of 2,000 hectares.

1,550 tons of raw cotton were delivered in 1946 159/ and 1,735 tons in 1947. 160/ It is possible that the 1950 goal was fulfilled before 1950. Production in 1950, 1951, and 1952 was probably no greater than 3,000-3,500 tons annually.

3. Nonirrigated Cotton-Growing Regions.

The nonirrigated cotton-growing regions in the Ukraine and the RSFSR are the least productive of the cotton-growing base in the USSR. Yields are low and uncertain, and the quality of the cotton is low. In 1940 the nonirrigated areas occupied 526,000 hectares, or 25 percent of the entire sown cotton area. They produced, however, only 6 percent of the total raw cotton output. 161/

That nonirrigated cotton is not very significant in the USSR is evident by the fact that the goal of the Fourth Five Year Plan was only 91,500 tons, to be produced from 183,000 hectares. With the slow recovery of cotton growing in the early postwar years, sown area in the nonirrigated sectors began to expand rapidly in 1949. Since this expansion occurred in areas of marginal productivity, that is, in areas in which the weather is a critical factor, production did not increase comparably. Table 13* presents an annual breakdown of raw cotton production in the nonirrigated areas in the postwar period.

* Table 13 follows on p. 34.

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Table 13

Cotton Production in Nonirrigated Regions a/
1946-52

<u>Year</u>	<u>Harvest</u> <u>(Metric Tons)</u>	<u>Percent</u> <u>of USSR</u> <u>Total <u>b/</u></u>	<u>Sown Area</u> <u>(Hectares)</u>	<u>Percent</u> <u>of USSR</u> <u>Total <u>b/</u></u>	<u>Yield</u> <u>(Centners</u> <u>per Hectare)</u>
1946	7,100	0.43	23,800	1.82	2.98
1947	16,300	0.96	54,200	3.75	3.01
1948	22,000	1.0	73,700	4.77	2.98
1949	45,000	1.78	228,700	12.88	1.97
1950	173,000	5.13	692,100	29.45	2.50
1951	173,000	4.75	692,100	28.54	2.50
1952	173,000	4.65	692,100	28.34	2.50

a. Production in the nonirrigated areas is based on source 162/. . . .
Source breakdown by years was not given in this report. Because of a
lack of data, production and sown area for 1950 were extended into 1951
and 1952.

b. Percentages calculated from the figures in Table 3, p. 13, above.

~~TOP SECRET~~

APPENDIX B

GROSS HARVEST VERSUS BARN HARVEST

In order to interpret Soviet agricultural statistics correctly, it is absolutely essential that the Russian terms used in expressing harvests be placed in their correct frames of reference as closely as possible. Gross harvest (valovoy sbor or valovoy urozhay), factual harvest (fakticheskiy sbor or fakticheskiy urozhay) and delivered (sdano) are terms which are used to denote cotton harvests. Gross harvest is presumed to be the biological crop, or all the crop in the field before the start of harvest. In 1939 the factual harvest of cotton was defined as the crop in the field at the start of harvest. This included (a) all cotton harvested, (b) cotton which fell on the ground, and (c) cotton which remained on the plant. 163/ In essence, then, where cotton is concerned, the "factual" crop, as defined in 1939, would be synonymous with the gross or biological harvest. Deliveries, or delivered, refers to that cotton which is delivered to the procurement points and, in essence, is the actual barn harvest. Obviously, statistics on deliveries are in most instances more useful than those on gross harvest, since they represent the actual procured crop and exclude the harvest losses, which range from about 10 to 15 percent. The use of the concept of gross harvest, however, has enabled the USSR to exaggerate official production reports.*

It is possible that the Soviet government has begun recently a new policy of reporting cotton plans and plan fulfillment in terms of the barn harvest only. On 12 February 1954, the Soviet press published the plan "For the Future Development of Cotton Growing in the Uzbek SSR, 1954-58," as released by the Council of Ministers

* Production (proizvodstvo) is also used to denote cotton harvest; amplification in text is needed to determine whether it refers to gross harvest or barn harvest.

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and the Central Committee of the Communist Party. ^{164/} By the terms of this decree the gross harvest (valovoy sbor) of raw cotton is planned to be 4.2 million tons by 1958. Since it is specified that this is a planned increase of at least 1.8 million tons over 1953, production in 1953 is calculated at 2.4 million tons.

the actual harvest of cotton in the Uzbek SSR as of 25 December 1953 was 2,411,458 tons. ^{165/} This figure is in terms of deliveries to procurement points, which is identical to the barn harvest, since all cotton is delivered to the state. Since this represents almost all the cotton delivered in the 1953 procurement season, in rounded figures the actual barn harvest for Uzbek in 1953 would be 2.4 million tons, which would coincide with the figure calculated from the published plan.

Since barn harvest figures substantiate press reports on the production of raw cotton in Uzbek SSR in 1953, it seems a sound conclusion that the 1954-58 plan is based on the actual barn harvest of cotton and not the biological harvest. This could mean that the Soviet government has begun a new policy of reporting cotton and perhaps all agricultural plans and plan fulfillments in terms of the actual barn harvest. This thesis is given further credence when viewed in the light of Malenkov's statement before the Supreme Soviet on 8 August 1953, in which he said ^{166/}:

.....In order to intensify the struggle against losses of crops and increase the amount of grain and other agricultural crops harvested, it is essential to put an end to the incorrect practice of evaluating the results of the work of collective farms as regards the production of grain and other produce, not on the basis of the amounts actually harvested, but on the basis of apparent yields. We should not forget that our country, our collective farms, can only be rich in crops actually stored in their barns, not in crops still out in the fields.

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Given the redefinition, demonstrated above, of valovoy sbor as barn harvest, it is likely that the term fakticheskiy sbor has reverted to its pre-1939 meaning and also denotes barn harvest. This likelihood is supported by the reappearance of the term in the 1953 Soviet plan-fulfillment report, where it has not been used in recent years. It was reported that the 1953 factual harvest (fakticheskiy sbor) of cotton increased in comparison to 1952. 167/ A 1953 estimate based on a percentage increase over 1940 of delivered (sdano) cotton fixes 1953 production at about 4.0 million tons. 168/ Since this would be considered the barn harvest, it would represent an increase of about 6 percent over 1952, when deliveries were officially reported to be 3.77 million tons. 169/ Thus, the factual harvest (fakticheskiy sbor) of cotton as officially reported for 1953 could be considered to be the barn harvest and not the biological harvest.

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APPENDIX C

RELIABILITY OF STATISTICS REPORTED
IN THE SOVIET PRESS

~~TOP SECRET~~

~~TOP SECRET~~

- 40 -

~~TOP SECRET~~

~~TOP SECRET~~

Table 14

- 41 -

~~TOP SECRET~~

~~TOP SECRET~~

Table 15

- 42 -

~~TOP SECRET~~

~~TOP SECRET~~

Table 16

- 43 -

~~TOP SECRET~~

~~TOP SECRET~~

Table 17

- 44 -

~~TOP SECRET~~

~~TOP SECRET~~

Table 18

- 45 -

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~~TOP SECRET~~

APPENDIX D

PLAN FULFILLMENT
FOR RAW COTTON PROCUREMENT
IN BUKHARA OBLAST, 1952

~~TOP SECRET~~

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~~TOP SECRET~~

APPENDIX E

SOURCE REFERENCES

~~TOP SECRET~~

~~TOP SECRET~~

- 50 -

~~TOP SECRET~~

~~TOP SECRET~~

- 51 -

~~TOP SECRET~~

~~TOP SECRET~~

- 52 -

~~TOP SECRET~~

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- 53 -

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- 54 -

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- 55 -

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- 56 -

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- 57 -

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